SPSC High DSM Load Forecast: Nevada

Overview

Tables 1 and 2 present the High DSM load forecasts (Column D) for the balancing authorities in Nevada, compared to the Common Case load forecasts. Table 3 directly compares the underlying energy efficiency projections for the Common Case and High DSM Case, in terms of their percentage of the hypothetical load forecast with no future energy efficiency savings. The remainder of this document explains how the High DSM scenario efficiency savings projections were developed for each balancing authority.

Table 1. High DSM Load Forecasts for 2021: Annual Electricity Consumption (GWh)

Balancing Authority (In-State Portion)	A	B	C	D = A - (C - B)	E = (D/A - 1)
	Common Case Load Forecast	Common Case Efficiency Savings	High DSM Efficiency Savings	High DSM Load Forecast	Percent Change from Common Case Load Forecast
	(GWh)	(GWh)	(GWh)	(GWh)	(%)
NEVP	26,665	1,659	6,509	21,815	-18%
SPP	12,694	795	2,297	11,191	-12%
State Total	**39,359**	**2,454**	**8,806**	**33,007**	**-16%**

Table 2. High DSM Load Forecasts for 2021: Annual Peak Demand (MW)

Balancing Authority (In-State Portion)	A	B	C	D = A - (C - B)	E = (D/A - 1)
	Common Case Load Forecast	Common Case Efficiency Savings	High DSM Efficiency Savings	High DSM Load Forecast	Percent Change from Common Case Load Forecast
	(MW)	(MW)	(MW)	(MW)	(%)
NEVP	6,659	402	1,186	5,874	-12%
SPP	2,102	224	416	1,909	-9%
State Total	**8,761**	**626**	**1,603**	**7,784**	**-11%**

Table 3. Comparison of Reference Case and High DSM Case (2020 Cumulative Savings)

Balancing Authority (In-State Portion)	Common Case Savings (% of No-EE Load Forecast)		High DSM Case Savings (% of No-EE Load Forecast)	
	GWh	MW	GWh	MW
NEVP	6%	6%	23%	17%
SPP	6%	10%	17%	18%
State Total	**6%**	**7%**	**21%**	**17%**

Note: The percentages in this table were calculated by dividing the savings projection by the sum of the savings

projection and the post-savings load forecast (e.g., High DSM savings divided by High DSM savings plus High DSM load forecast)

High DSM Scenario Savings Projection

The High DSM Scenario is based on achievement of all cost-effective energy efficiency savings (i.e., the "economic potential") in each balancing authority. There have not, however, been any recent energy efficiency potential studies for Nevada utilities that include an estimate of the economic potential. The SPSC DSM Work Group therefore developed an estimate of economic potential for Nevada, by extrapolating the results of two recent economic potential studies for other utilities in the desert southwest: the 2010 potential study for Salt River Project (Cadmus, 2010) and the 2007 potential study for Rocky Mountain Power (Quantec, 2007).[1] Table 4 summarizes the economic potential estimates from these two studies.

Table 4. Economic Potential Estimates (GWh)

Market Sector	**Salt River Project (2020)**	**Rocky Mountain Power (Utah service territory, 2027)**
Residential	5,015	1,997
Commercial	3,370	2,365
Industrial	677	885
Total	9,063	5,247

Sources: Cadmus (2010), Table 13; *Quantec (2007), Tables 53, 55, and 57.*

We extrapolate the SRP and RMP potential study results to the two balancing authorities in Nevada, on a sector-by-sector basis, in proportion to the 2008 retail sales in each balancing authority (see Table 5). Specifically, for each sector, we calculate the economic potential as a percentage of 2008 retail sales for both SRP and RMP, then compute the average of the two percentages, and multiply the resulting average to the sectoral retail sales for each Nevada balancing authority to estimate the economic potential for that sector. While we recognize that this is a simplistic approach, and ignores potential differences in demographics, climate, and end-use characteristics, we also believe that it is a reasonable approximation given the data and resources available.

[1] A different potential study for Rocky Mountain Power was issued more recently (Cadmus, 2011), but that study does not include an estimate of economic potential, and therefore is not used for the purpose of this extrapolation. In addition, several other energy efficiency potential studies for southwestern utilities have been issued within the past five years, but, for various reasons, none are suitable for extrapolation to Nevada.

Table 5. Extrapolation of Economic Potential to Nevada Balancing Authorities

	Residential	Commercial	Industrial	Total
2008 Retail Sales (Bundled + Delivery)[1]				
SRP	12,775	11,245	3,379	27,399
PacifiCorp (Utah)	6,561	7,934	8,126	22,621
NEVP	9,600	6,010	8,842	24,452
SPP	2,262	3,086	3,795	9,143
Net Economic Potential in 2021 (% of 2008 retail sales)				
SRP	39%	30%	20%	33%
PacifiCorp (Utah)	30%	30%	11%	23%
NEVP	35%	30%	15%	27%
SPP	35%	30%	15%	25%
Net Economic Potential in 2021 (GWh)				
SRP	5,015	3,370	677	9,063
PacifiCorp (Utah)	1,997	2,365	885	5,247
NEVP	3,345	1,796	1,367	6,509
SPP	788	922	587	2,297

[1] Data Source: EIA-861 retail sales data for 2008.

The SRP and RMP potential studies provide estimates of annual energy savings, but not peak demand savings. We therefore estimate the peak demand savings associated with achieving the economic potential by applying a stipulated peak-to-energy savings ratio for each sector, based on the median value across other potential studies conducted for utilities in the Southwest (see Table 6). The resulting estimates of peak demand savings for the two Nevada balancing authorities are shown in Table 7.

Table 6. Peak-to-Energy Savings Ratios from a Sample of Energy Efficiency Potential Studies

Utility/Region	Study	Residential	Commercial	Industrial
Public Service Colorado	KEMA (2010)	0.29	0.20	0.14
Public Service New Mexico	Itron (2006)	0.21	0.18	0.10
Tri-State (NM)	Nexant (2010)	0.17	0.19	0.21
Arizona Public Service	ICF (2007)	0.18	0.21	n/a
Median Value		0.19	0.20	0.14

Table 7. Estimated Peak Demand Savings Economic Potential

	Residential	Commercial	Industrial	Total
Assumed Peak-to-Energy Savings Ratio (MW/GWh)	0.19	0.20	0.14	n/a
NEVP	636	359	191	1,186
SPP	150	184	82	416